UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,544	08/01/2000	KWANG-LEONG CHOY	674505-2011	8846

20999 7590 06/27/2008

FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER	
HOFFMANN, JOHN M	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
06/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/555,544
Filing Date: August 01, 2000
Appellant(s): CHOY ET AL.

Angela Collison
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/21/2008 appealing from the Office action mailed 12/27/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

JP 56-5337	HITACHI	01-1981
JP 01065040	MASAHIDE	3-1989
WO 97/21848	CHOY	6-1997
6312656	BLACKWELL	11-2001

It is noted that JP 01065040 was submitted by appellant in the 6/01/2000 IDS. Throughout prosecution it has also been referred to as “Japan '376” or "Japan 62-220376”. The translation refers to it as “S64-65040”.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Rejection #1

Claims 45-50 and 52-56 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hitachi (JP 56-5337).

45. An apparatus for depositing material on a substrate, comprising:

a nozzle assembly including a first outlet from which a stream of droplets of a precursor liquid is in use delivered to a substrate,

Referring to the English language translation of Hitachi: Figure 1 shows the nozzle assembly (3’, 7’, 9’ and 11’) ; either of 3’ or 11’ can be considered to be the first outlet. The stream of droplets, the precursor liquid, the delivery and the substrate are not structure of the apparatus; thus the amount of weight given the related limitations is that of “intended use”. A cursory review of Hitachi shows that Hitachi could be used in the manner disclosed.

From MPEP 2115 [R-2] Material or Article Worked Upon by Apparatus
MATERIAL OR ARTICLE WORKED UPON DOES NOT LIMIT APPARATUS CLAIMS
"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d *>996<, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).
In In re Young, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable.
In In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967), an apparatus claim recited "[a] taping machine comprising a supporting structure, a brush attached to said supporting structure, said brush being formed with projecting bristles which terminate in free ends to collectively define a surface to which adhesive tape will detachably adhere, and means for providing relative motion between said brush and said supporting structure while said adhesive tape is adhered to said surface." An obviousness rejection was made over a reference to Kienzle which taught a machine for perforating sheets. The court upheld the rejection stating that "the references in claim 1 to adhesive tape handling do not expressly or impliedly require any particular structure in addition to that of Kienzle." The perforating device had the structure of the taping device as claimed, the difference was in the use of the device, and "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself."
Note that this line of cases is limited to claims directed to machinery which works upon an article or material in its intended use. It does not apply to product claims or kit claims (i.e., claims directed to a plurality of articles grouped together as a kit).

MPEP 2114 (in part): MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART
A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was "for mixing flowing developer material" and the body of the claim recited "means for mixing ..., said mixing means being stationary and completely submerged in the developer material". The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

and a second outlet from which a flow of fuel is in use delivered such as to provide an annular flame combustion region through which at least a portion of the stream of droplets in use passes before reaching the substrate;

Feature 9' of Hitachi is the second outlet. The flow, the fuel, the region, the passing the stream, the droplets and the substrate are not structure of the apparatus thus the amount of weight given the related limitations is that of "intended use". A cursory review of Hitachi shows that Hitachi could be used in the manner disclosed. Although Hitachi shows a flow oxidizer rather than "a flow of fuel", such is an intended use.

a precursor supply for supplying a precursor liquid to the nozzle assembly;

See feature 1.

an electrical supply for applying an electric field between the first outlet and the substrate;

See feature 21.

and a burner for generating the flame of the annular flame combustion region between the first outlet and the substrate;

9', 11' and 7' together form the burner face. The generating of the flame of an annular combustion region is also an intended use. It is clear the structure of Hitachi could be used to create an annular flame combustion region, merely proper selection of gases. For example an inert gas through 11' and combustible gasses at 7' and/or 9'. This is NOT to be interpreted as saying Hitachi teaches the flame or gases, rather that Hitachi's

structure only be reasonably capable of being used to create an annular combustion region.

whereby the precursor liquid is chemically reacted, or decomposed, or chemically reacted and decomposed, in the annular flame combustion region to provide the deposited material.

This is an intended use limitation. One could create an annular flame combustion region if one were to flow fluids substantially in the same manner that they were applied by applicant.

Examiner interprets "annular flame combustion region" by giving the term the broadest reasonable interpretation in its ordinary usage in context as they would be understood by one of ordinary skill in the art in light of the written description in the specification, including the drawings, unless another meaning is intended by appellants as established in the written description of the specification, and without reading into the claims any limitation or particular embodiment disclosed in the specification. See, e.g., In re Am. Acad. Of Sci. Tech. Ctr, 267 F.3d 1359, 1364, 70 USPQ2d 1 827, 1830 (Fed. Cir. 2004); In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). As illustrated by specification Fig 1 and page 3, lines 10-11, feature 70 is the annular combustion region. From the drawing, it clear that region 70 is not a ring, because there is no passage through the center. Thus one would understand that the appellants intended the term "annular" to not have a narrow meaning. It does not require a ring, rather it can be ring-like.

Claims 46-47 and 50 are clearly met.

Claim 48-49: 7' is the third outlet.

Claim 52-53: Feature 23 of figure 2 is the annular electrode.

Claim 54: see 13 of the Hitachi figure. It reasonably shows a rod which is used to position the substrate 12 higher.

Claims 55-56 are intended use limitations which require no structural feature that defines over Hitachi.

Rejection #2

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi in view of MASAHIDE JP 01065040.

Claim 51 is taught by Hitachi, except for the mesh. See the above discussion of Hitachi.

Japan '376 taught: PURPOSE: To efficiently obtain the title preform without cracking by cooling a porous preform with an ion jet generated by a corona discharge, and simultaneously depositing fine glass particles on the preform at the time of producing the porous optical fiber preform by the axis formation in a vapor phase. CONSTITUTION: A corona-discharge electrode 7 is arranged above a fine glass particle synthesizing burner 1. A glass material and a combustion gas are supplied to the burner 1 to cause a flame hydrolysis reaction, the formed fine glass particles 3 are deposited on the surface of a starting material, and a porous optical fiber preform 6 is obtained. A negative voltage is simultaneously impressed on the corona-discharge

electrode 7 and a positive voltage on a wire- mesh electrode 10 from a DC power source 8 to generate a corona discharge between both electrodes, and an ion jet 9 is produced. The porous preform 6 is cooled by the ion jet 9, the fine glass particles are simultaneously deposited and the preform 6 is produced.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a wire-mesh electrode like that of Japan '376 in the arrangement of Hitachi so as to efficiently obtain the preform without cracking.

As to the mesh being between the outlet and the substrate: First, the substrate is not part of the apparatus. Rather it is feature that is replaced each time the process is repeated. Thus the 'disposed between' is an intended use. One could use a very large substrate so that the mesh is directly between the outlet and the substrate. This is NOT to be taken as an assertion that it would have been obvious to use a very large substrate, rather that the claim is rather broad in scope and only requires an apparatus that could be used with a very large substrate.

Alternatively: One can consider the Masahide mesh to be "between" the burner and the substrate because it is lower than the substrate and higher than the burner. Although applicant's preferred embodiment shows that the screen is *directly* between the burner and the substrate, there is nothing in the application which suggests applicant intend claim 51 to require the mesh be directly between the two. Compare to the statement "Chicago is between New York and Los Angeles." One would understand that this does not mean that Chicago is *directly* between the two. Thus the broadest reasonable interpretation of "between'" does not require it be directly between.

Rejection #3

Claims 29-50 and 52-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al (WO 97/21848) in view of Blackwell et al (US 6312656).

Choy et al teaches apparatus and methods for depositing oxide or ceramic material on a substrate including delivering a stream of precursor droplets, applying an electric field between the droplet outlet and the substrate and heating the area between the outlet and the substrate to convert the droplets to deposited material (see figures, abstract, pages 1, 2, 4, 5, 7, 10, 17 and Table 1). Choy et al does not teach generating a flame from a burner coaxial with the droplet outlet. Blackwell et al taught combustion processes and apparatus for atomized liquid reactants wherein atomization can be done electrostatically (see col. 8, lines 27-41; col. 8, line 66 to col. 10, line 7 and figure 4). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the fuel/oxygen flame from Blackwell et al as the heat source in Choy et al because it would have been a functional equivalent to the heat source of Choy et al in that Blackwell et al teaches that it was well known to do so for silica production. Likewise, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply an electric field in the arrangement of Blackwell et al because Choy et al taught that it would guide the droplets to the substrate more efficiently. Disclosure of electrostatic atomization in Blackwell et al would also have suggested the use of an electric field in the area of the burner of Blackwell et al.

Choy et al teaches introducing inert gas around the precursor atomizer, but does not teach the claimed sequence of annular gas jets. Blackwell et al taught the use of

inert shield gas between liquid precursor droplets and an outer, annular fuel gas jet. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to arrange the coaxial burner conduits and gas jets as claimed because Blackwell et al taught that it would have prevented the premature deposition of oxide material on the burner face. 12. Blackwell et al does not state that the flame is annular, per se. Since Blackwell et al teaches that the fuel is introduced only through the outermost concentric opening shown in figure 4, the combustion zone within the flame o Blackwell et al is necessarily annular. Blackwell et al also states that "burner buildup" is to be avoided by introducing inert gas around the feedstock. This is a clear teaching that the combustion, chemical reaction and feedstock decomposition is meant to take place away from the burner face. 13. Furthermore, a person of ordinary skill in the art would recognize that the relative gas flow rates through the channels of Blackwell et al would have determined the shape of the flame. It would have been further obvious to a person of ordinary skill in the art at the time the invention was made to adjust the relative gas flow rates through the concentric channels of Choy et al and Blackwell et al to produce an annular flame. 14.

Claim 30 is deemed to be inherently met. The hydrocarbon portion of the siloxanes would have to decompose prior to combustion. The combustion thereof would release energy thus increase the temperature. In other words, the siloxane would go from liquid siloxane, to vaporized siloxane, to decomposed components and finally to oxidized/combusted components. To look at it another way: Appellant and

Hitachi do substantially the same thing, thus one would reasonably expect that the reaction and/or the decomposition would occur as substantially the same.

Claim 31: it is inherent that the flow would diverge. Hitachi's figures show divergence. Heat causes gases to expand. Also, to cause gases to flow there must be a pressure differential: the gas would be higher pressure in the conduits, and would tend to expand when they leave the conduits. Also, there is no physical structure or any other feature which would tend to cause the gas to converge.

Claim 32 is clearly met.

Claim 33: Hitachi's figures show that the spray diverge in the burner – and when it is in the flame.

Claim 34: the specification does not set forth any upper limit for when the gas is cold. It would have been obvious to have the gas at room temperature, because there is no teaching of anything which would elevate the temperature. It is deemed that room temperature is "cold" relative to the flames.

Claims 35-37, and 40 are clearly met.

Claim 38: Although only a single component is disclosed, it would have been obvious to add extra dopants, depending upon the desired properties of the optical fiber. It is noted that appellant gives no examples of multiple components.

Claim 39: the flame would heat the substrate.

Claim 41: Arrows 13 and 14 denote two movements.

Claim 42: Arrow 13 denotes controlling the separation.

Claims 43 and 44 require that the reaction/decomposition occur away from and in the vicinity of the substrate, respectively. The specification and claims give no guidance as to how far away “away from” is, nor how close “vicinity" is. Examiner finds that neither of these limitations are inherently met. At first the reaction would occur relatively close to the substrate, but as time progresses and the substrate is retracted, the reaction is away from the substrate.

Claims 45- 50 and 52-56 are reasonably met from the combination - see the above discussion regarding the intended use limitations. For claim 53, figure 11 of Choy shows the annular electrode.

Rejection #4

Claims 29-44 and 52-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al (WO 97/21848) in view of Hitachi (JP 56-5337).

Choy et al taught methods for depositing ceramic material as outlined in the above rejections. Choy et al did not teach generating an annular flame. As clearly illustrated in Figure 1 of Hitachi, the flame 16' is annular. Hitachi did not teach that a 'fuel' was delivered from a second outlet about the atomized raw material stream. Since the raw material was atomized with hydrogen and oxygen was introduced from a coaxial outlet surrounding the hydrogen and raw material stream, the oxidant can be considered fuel. Regardless, the figure clearly shows an annular flame 16'. It would have been obvious for a person of ordinary skill in the art to use the flame from Hitachi as the heat source in Choy et al because it would have been a functional equivalent to

the heat source of Choy et al in that Hitachi taught that it was well known to do so for silica production.

Choy et al taught introducing inert gas around the precursor atomizer, but did not teach the claimed sequence of annual jets. Hitachi taught the introduction of Ar, He, N2 or Ne through conduit 7 (see page 2 of translation, line 25). It would have been obvious for a person of ordinary skill in the art to deliver a flow of 'cold gas' from a third outlet around the raw material stream and within the flow of fuel (oxidant) because Hitachi clearly illustrated that such an arrangement would help produce an annular flame 16'.

In claim 30, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to expect the chemical reaction and/or decomposition of the precursors to occur in the overlap zone between the droplet stream and the annular flame because the droplets would be forced to travel through the inert gas stream and to reach the flame of Hitachi.

In claim 31, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to expect the fuel flow to be diverging because a gas ejected from an orifice under pressure diverges. Furthermore, Hitachi's flame shape is clearly suggestive of a diverging flow.

The rest of the limitations from claims 32-44 are deemed to be clearly met.

Rejection #5

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al and Blackwell et al as applied to claim 45 above, and further in view of MASAHIDE Japan 62-220376 (see abstract and figures).

Choy et al and Blackwell et al do not teach a mesh disposed between the first outlet and the substrate. Japan '376 taught: PURPOSE: To efficiently obtain the title preform without cracking by cooling a porous preform with an ion jet generated by a corona discharge, and simultaneously depositing fine glass particles on the preform at the time of producing the porous optical fiber preform by the axis formation in a vapor phase.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a wire-mesh electrode like that of Japan '376 in the arrangement of Choy et al and Blackwell et al because a mesh would have been equivalent to the ring electrode of Choy et al.

(10) Response to Argument

Regarding the rejection of claims 45-50 and 52-56, it is first argued that the invention is directed to methods of depositing material on a substrate. This is incorrect; they are directed to an apparatus. See the first two words of each of claims 45-50 and 52-56.

It is argued that Hitachi's flame manifestly cannot be annular because a burner face necessarily implies a flame across the entire face. This is not persuasive because

is merely gainsaying. No rationale or evidence as to why a burner face implies a flame across the face. The only difference between appellant's figure 1 and Hitachi's figure 2 is that the inner-most tube is much more narrow with appellant's. Appellant gives no explanation as to how/why the two similar structures would produce completely different combustion regions. If anything, since Hitachi has a much bigger inner-most tube 11', it would require even more time for the reacting species to combine at the central portion. Thus it would be annular for a greater duration.

Furthermore, regarding the argument that Hitachi's flame manifestly cannot be annular because a burner face necessarily implies a flame across the entire face: for this to be true, it would mean that appellant's invention is not enable. This is because it would mean that appellant's burner face necessarily implies a flame across the entire face. Present claim 45 requires a burner. Although this burner is not described, one would reasonably imply from the drawing that it has a burner face. And since it has a burner face, it has (using appellant's rationale) a flame across the entire face.

Hitachi's apparatus has three concentric tubes with a planar termination face - as does appellant. Although the relative spacings are different, once would reasonably expect that one could obtain substantially the same flame effects, based on the input parameters. See also Appellant's specification, page 3, lines 10-13 which discloses various factors that can be used to control the region. Appellant has not provided any reasonable explanation as to why one could get an annular region with the present apparatus, but not with the Hitachi structure.

Moreover, one of ordinary skill understands that fuel needs oxygen (or another oxidant) to combust. One would understand in the center of the Hitachi burner face, that there is no oxygen. Thus there cannot be any flame in the center. Therefore it is impossible to create a flame across the entire Hitachi burner face – because there is no oxygen in the center to support combustion. Moreover, Hitachi flows inert gas between the fuel stream and the oxygen stream (page 2, lines 25-29). Thus, the fuel and the oxygen are not in contact until after they have time to mix/diffuse through the inert gas. Thus there would be no flame at the axis, until the oxygen would be able to migrate/mix into the axial region - as is shown by applicant's drawing.

Regarding claim 51 it is argued that the corona mesh is different from applicant's mesh which is not for an electric field. This is not very relevant because the claims do not preclude a corona mesh. The present claim (when interpreted in light of the specification) does not limit the mesh by size or purpose and thus reads on any mesh of any sort for any reason. IT does not exclude the MASAHIDE electrode. It is also noted that the substrate is not part of the apparatus. Thus whether the mesh is "between" the apparatus and some other feature which is not part of the required structure, is a question that must be interpreted as an intended use limitation. Thus even if the mesh must be "directly" between the burner in the substrate, it is known to grow fiber preforms radialy, compare Blackwell's figure 4, with an horizontal preform to Hitachi's vertical preform. Thus when using an elongated horizontal preform with the Masahide-Hitachi combination, the mesh would be directly between a burner and a portion of the horizontal preform. This is NOT intended to be a finding that it would

have been obvious to use a horizontal preform when one makes the combination of Hitachi and Masahide. Rather, it is just pointing out that appellant desires broad claims that do not require any specific substrate as part of the structure.

As to the argument that Hitachi has no annular flame: the claims do not require an annular flame. Rather they only require an annular region. Appellant's figure 1 shows that Appellant's flames is not truly annular – because there is no hole that passes through the center.

It is noted that a claim interpretation that puts the preferred embodiment outside the claim is "rarely, if ever, correct and would require a highly persuasive evidentiary support", Vitronics, at 1583. Examiner assumes that appellant's figure 1 is the preferred embodiment. Since there is no evidentiary support that the claim requires a truly annular flame, it is improper to interpret the claim in a manner which excludes appellant's figure 1 (preferred) embodiment. Also, examiner could find no discussion of a truly annular flame (as opposed to the region).

Regarding the rejection of claim 29 it is argued that Examiner's assertion that the flame combustion region in Blackwell must be annular (because the fuel is in the outermost channel) has no basis. It is a matter of common sense that fuel and oxygen need to combine before they can combust. With no fuel in the central portion, there can be no combustion. Moreover, col. 9, lines 38-40 of Blackwell teach that the feedstock (which is in the axial position) is blanketed by the inert gas. It is clear that no combustion occurs where the feedstock leaves the burner. Of course, further from the

burner, the flame is along the axis, but that also occurs in applicant's invention (see figure 1.)

It is also argued that Blackwell has a “continuous flame area” . The relevance of this is not understood. Applicant’s method also creates a continuous flame area; figure 1 shows that the flame - as it impinges the substrate is continuous and devoid of annularity.

As far as Examiner can tell, appellant merely took note that there is no combustion in a limited region of appellant’s flame.

From MPEP 2145

II. ARGUING ADDITIONAL ADVANTAGES OR LATENT PROPERTIES
Prima Facie Obviousness Is Not Rebutted by Merely Recognizing Additional Advantages or Latent Properties Present in the Prior Art
Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) (Claims were directed to grooved carbon disc brakes wherein the grooves were provided to vent steam or vapor during a braking action. A prior art reference taught noncarbon disc brakes which were grooved for the purpose of cooling the faces of the braking members and eliminating dust. The court held the prior art references when combined would overcome the problems of dust and overheating solved by the prior art and would inherently overcome the steam or vapor cause of the problem relied upon for patentability by applicants. Granting a patent on the discovery of an unknown but inherent function (here venting steam or vapor) "would re-move from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art." 596 F.2d at 1022, 201 USPQ at 661.); In re Baxter Travenol Labs., 952 F.2d 388, 21 USPQ2d 1281 (Fed. Cir. 1991) (Appellant argued that the presence of DEHP as the plasticizer in a blood collection bag unexpectedly suppressed hemolysis and therefore rebutted any prima facie showing of obviousness, however the closest prior art utilizing a DEHP plasticized blood collection bag inherently achieved same result, although this fact was unknown in the prior art.).
"The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious." Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985) (The prior art taught combustion fluid analyzers which used labyrinth heaters to maintain the samples at a uniform temperature. Although appellant showed an unexpectedly shorter response time was obtained when a labyrinth heater was employed, the Board held this advantage would flow naturally from following the suggestion of the prior art.). See also Lantech Inc. v. Kaufman Co. of Ohio Inc., 878 F.2d 1446, 12 USPQ2d 1076, 1077 (Fed. Cir. 1989), cert. denied, 493 U.S. 1058 (1990) (unpublished — not citable as precedent) ("The recitation of an additional

advantage associated with doing what the prior art suggests does not lend patentability to an otherwise unpatentable invention.").
In re Lintner, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) and In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990) discussed in MPEP § 2144 are also pertinent to this issue.

That Appellant took note of the fact that there is no combustion at a location that lacked the necessary ingredients (i.e. fuel and oxidant) for combustion is not a sufficient basis for patentability.

It is also argued that since Blackwell has frusto-contical channels, it manifestly cannot provide for the generation of an annular flame combustion region. Examiner could find no rationale to support this assertion. Given that Blackwell figure 4 shows droplets 42 above the burner and the disclosure of blanketing from oxygen (col. 9, lines 38-40), it appears to be substantially the same as what appellant describes - for example at *originally filed* claim 18.

It is argued that Blackwell's use of inert gas to inhibit soot build-up, is proof that there is soot build up, and thus there is a continuous flame. Examiner disagrees. The plain reading is that without the inert gas, that there would be build-up. But with the inert gas, the build-up can be inhibited. The term “inhibit” can mean “prevent". It is reasonable to expect that one could prevent a build-up by sufficient blanketing. It is noted that appellant’s combustion region is based on many variables (page 3, lines11-13). Thus one would expect that Blackwell’s region could also be controlled.

At the middle of page 15 of the Brief it is argued that since the conversion site is proximate the burner face, the combustion region cannot be annular. Examiner notes the word "proximate" indicates that there can be a distance, however small, between

the conversion site and the burner face. Thus at any space between the face and the conversion site can read on the claimed region. Claim 18 (as originally filed) indicates that the region would be any region through which the droplets can pass prior to reaching the flame. In other words: given Blackwell's "proximate", one would reasonably infer it does NOT require that the conversion site be contiguous to the burner face. Thus the spacing, however small, reads on the claimed invention.

It is argued that Blackwell's figure 4 shows a flame combustion region 23. A review of the Blackwell shows that there is no mention of a "combustion region". 23 is a flame (Blackwell, col. 9, line 13); Examiner could find no basis for concluding that such is a "combustion region".

Appellant also argues that there is nothing in Blackwell that suggests it incorrectly represents the flame. The courts have held that drawings do not always correctly represent the invention. When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See Hockerson-Halberstadt, Inc. v. Avia Group Int 'l, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000). Regardless, even if Blackwell can be used to make a flame that is contiguous, it can still be used to create an annular region - for example by having sufficient inert gas flow in a central region to prevent combustion.

It is also argued that given Choy's heating regime, there would be no possible motivation to modify the apparatus or method of Choy. The Office made a finding that it

would have been obvious (e.g. to prevent the premature deposition of oxide material on the burner face). This finding has not been specifically disputed.

Regarding the combination of Choy and Hitachi, it is argued that such is not proper because Hitachi cannot have an annular flame. As indicated above, the claims do not require an annular flame - only a region thereof needs to annular. Hitachi necessarily has an annular flame region, because the central region cannot support combustion because necessary components are lacking.

Regarding the combination of Choy, Blackwell and Masahide, it is argued that the Masahide mesh is in contrast to appellant's mesh which is not related to an electric filed. Examiner understands that appellant's disclosed mesh is different from that of Masahide, but this is not very relevant because claim 51 is not limited to appellant's disclosed mesh, nor does the Brief point out how the claims define over the Masahide mesh.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/John Hoffmann/

Primary Examiner, Art Unit 1791

Conferees:

/Yogendra N Gupta/

Supervisory Patent Examiner, Art Unit 1791

/Christopher A. Fiorilla/

Chris Fiorilla

Supervisory Patent Examiner, Art Unit 1700